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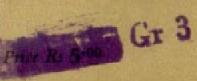
# Indian Standard SPECIFICATION FOR CHEWING GUM AND BUBBLE GUM (First Revision)

UDC 664·144



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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG NEW DELHI 110002



## Indian Standard

#### SPECIFICATION FOR CHEWING GUM AND BUBBLE GUM

### (First Revision)

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(Continued on page 2)

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(Continued from page 1)

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# Indian Standard SPECIFICATION FOR CHEWING GUM AND BUBBLE GUM (First Revision)

#### O. FOREWORD

- 0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 January 1981, after the draft finalized by the Bakery and Confectionery Industry Sectional Committee had been approved by the Agricultural and Food Products Division Council.
- 0.2 Chewing gum and bubble gum were originally made of the prime raw material called 'chicle gum' which was imported; sugar and flavouring agents were added to make the chew more palatable. With the increase in demand for these products, and the short supply of chicle gum, considerable research was undertaken and several substitutes of natural and synthetic gums were developed in the country. This standard incorporates the list of indigenous gums and other recommended ingredients for gum base and prescribes other essential requirements of chewing and bubble gums.
- 0.3 Chewing gum and bubble gum are offered to consumers in several forms. Candy coated gum in rectangular pillow or ball shape, stick or slab gum, double gum in toffee shape are some of the varieties common in the Indian market. It is hoped that this standard would help in control of quality of chewing gum and bubble gum which are mainly consumed by children.
- 0.4 This standard was first published in 1972. This revision incorporates Amendments No. 1 and 2. In addition, the lists of recommended ingredients and sources for gum base and optional ingredients for chewing gum and bubble gum have been made more extensive. Besides, the method for determination of gum base content has also been modified.
- 0.5 In the formulation of this standard due consideration has been given to the Prevention of Food Adulteration Act, 1954, and Rules framed thereunder. Due consideration has also been given to the Standards of Weights and Measures (Packaged Commodities) Rules, 1977. However, this standard is subject to restrictions imposed under these, wherever applicable.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS: 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

#### 1. SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for chewing gum and bubble gum.

#### 2. ESSENTIAL INGREDIENTS

- 2.1 The following essential ingredients shall be used for the manufacture of chewing gum and bubble gum:
  - a) Chewing gum base or bubble gum base, natural or synthetic, nontoxic. List of recommended ingredients or sources thereof are given in Appendix A.
  - b) Cane sugar ( see IS: 5982-1970† ).
- 2.2 Binding Material Liquid glucose (corn syrup) (see IS: 873-1974‡).

#### 3. OPTIONAL INGREDIENTS

- 3.1 In addition to the essential ingredients specified under 2, the following additional ingredients may also be used:
  - a) Glycerin;
  - b) Malt;
  - c) Milk powder;
  - d) Chocolate;
  - e) Coffee;
  - f) Gelatin, food grade;
  - g) Flavours permitted in the PFA Rules;
  - h) Colours permitted in the PFA Rules;
  - i) Anti-oxidants permitted in the PFA Rules;
  - k) Preservatives permitted in the PFA Rules;

<sup>\*</sup>Rules for rounding off numerical values (revised).
†Specification for plantation white sugar for identification from other sugars.

<sup>#</sup>Specification for liquid glucose ( first revision ).

- m) Emulsifiers permitted in the PFA Rules;
  - n) Sorbitol;
  - Eubricants, such as starch, talc, stearic acid, icing sugar, paraffin
    wax or liquid paraffins food grade, or other food grade mineral
    oil;
  - q) Water, potable;
  - r) Acidulants, food grade;
  - s) Nutrients like vitamins, minerals, proteins; and
  - t) Titanium dioxide, food grade ( see IS: 8356-1977\* ).

#### 4. TYPES

- 4.1 The chewing gum and bubble gum shall be of the following types.
- **4.1.1** Candy Coated Gum This shall be made from chewing gum or bubble gum base at the centre, which shall be coated with sugar syrup, coloured or uncoloured and flavoured as desired.
- 4.1.2 Stick or Slab Gum This shall be made directly from the bubble gum mix without coating, coloured or uncoloured, sweetened and flavoured to taste as desired.
- **4.1.3** Toffee-Shaped Double Gum This shall be made directly from the bubble gum mix without coating, coloured or uncoloured, sweetened and flavoured to taste as desired.

#### 5. REQUIREMENTS

5.1 The material shall be in any desired shape, size or colour with pleasant taste and flavour. It shall be free from dirt and other harmful or injurious foreign matter and shall be non-toxic. The material shall not be brittle or gritty, but smooth and with characteristic chewability.

Note - The appearance, taste, odour shall be determined by organoleptic tests.

- 5.1.1 A minimum gum base content of 12.5 percent by mass in chewing gum and 14.0 percent by mass in bubble gum shall be present when determined by the method prescribed in Appendix B.
- 5.2 The material shall not contain added colouring matters other than those permitted in the Rules laid under the Prevention of Food Adulteration Act, 1954.
- 5.2.1 Total quantity of added coal tar food colours shall not exceed 200 mg/kg of the finished product.

<sup>\*</sup>Specification for titanium dioxide, food grade.

#### IS: 6747 - 1981

- 5.2.2 Chewing gum may contain titanium dioxide, food grade (see IS: 8356-1977\*) to the maximum extent of 0.1 percent.
- 5.2.3 Lubricants like stearic acid, talc, starch and king sugar shall not exceed 0.1 percent.
- 5.3 The product shall be manufactured in premises maintained under hygienic conditions ( see 1S: 2491-1972†).
- 5.4 The material shall also comply with the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR CHEWING GUM AND BUBBLE GUM
( Clauses 5.4 and 8.1 )

| SL<br>No. | CHARACTERISTIC                                  | REQUIREMENT               |             | METHOD OF TEST,<br>REF TO CL NO. OF |  |
|-----------|---|---------------------------|-------------|-------------------------------------|--|
| 110.      |   | Chewing Bubble<br>Gum Gum |             | IS: 6287-1971*                      |  |
| (1)       | (2)   | (3)                       | (4)         | (5)                                 |  |
| i)        | Moisture, percent by mass, Max                  | 3.5                       | <b>3·</b> 5 | 4                                   |  |
| ii)       | Ash sulphated, percent by mass, Max             | <b>9</b> ·5               | 11.5        | 5                                   |  |
| iii)      | Acid insoluble ash, percent<br>by mass, Max     | 2.0                       | <b>3</b> ·5 | 6                                   |  |
| iv)       | Reducing sugars, percent<br>by mass, <i>Min</i> | <b>4</b> ·5               | 5.2         | 7                                   |  |
| v)        | Sucrose, percent by mass,  Max                  | 70-0                      | 60.0        | 8                                   |  |

<sup>\*</sup>Methods of sampling and analysis for sugar confectionery.

#### 6. PACKING AND MARKING

6.1 The material, if wrapped, shall be in plain or printed cellulose film, waxed paper, aluminium foil, polyethylene or other flexible packaging materials. In the case of printed packaging material, the printing ink shall not come into direct contact with the gum. If the printing ink comes in contact it shall be non-toxic. The wrapped or unwrapped material shall be bulk packed or further packed in clean, reasonably airtight and sound containers. Such containers shall be made of tinplate, glass, plastics, thermoplastic material, moisture-proof paper, cellulose film or any other suitable packaging material including flexible materials.

<sup>\*</sup>Specification for titanium dioxide, food grade.

<sup>†</sup>Code for hygienic conditions for food processing units (first revision).

- **6.2 Marking** The following particulars shall be marked or labelled legibly and indelibly on each container (outer cartons or bags):
  - a) Name and type of the material;
  - b) Name of the manufacturer;
  - c) Batch or code number;
  - d) Numbers;
  - e) The statement (Permitted colours, Preservatives used, if used);
  - f) Net content; and
  - g) Other labelling requirements according to the provisions of Standards of Weights and Measures (Packaged Commodities) Rules, 1977.
- 6.2.1 Each container may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

#### 7. SAMPLING

7.1 Representative samples of the material shall be drawn as prescribed in 3 of IS: 6287-1971\*.

#### 8. TESTS

8.1 Tests shall be carried out as prescribed in Appendix B of this standard and the appropriate clauses of IS: 6287-1971\* specified in col 5 of Table 1.

#### 8.2 Quality of Reagents

8.2.1 Unless otherwise specified, pure chemicals and distilled water (see IS: 1070-1977†) shall be employed in the tests.

Note — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

<sup>\*</sup>Methods for sampling and analysis of sugar confectionery, †Specification for water for general laboratory use (second revision).

#### APPENDIX A

[ Clause 2.1(a) ]

# LIST OF RECOMMENDED INGREDIENTS OR SOURCES FOR GUM BASE

- 1. Babul, Kikar (Gum Arabic)
- 2. KHAIR
- 3. Jhingan (jael)
- 4. Ghatti
- 5. Chiku (Sapota)
- 6. Natural rubber latex
- 7. Synthetic rubber latex
- 8. Glycerol ester of wood rosin
- 9. Glycerol ester of gum rosin
- 10. Synethic resin
- 11. Glycerol ester of partially hydrogenated gum or wood rosin
- 12. Natural resin
- 13. Polyvinyl acetate
- 14. Gelatin, food grade (IS: 5719-1970\*)
- 15. Calcium carbonate
- Magnesium carbonate
- 17. Waxes, food grade
- 18. Glycerol monostearate
- 19. Sorbitol monostearate
- 20. Permitted antioxidants
- 21. Permitted food colours
- 22. Sorbitol ( see IS: 4750-1968† )
- 23. Agar, food grade ( see IS: 5707-1979‡)
- 24. Glycerin
- 25. Phosphated starch
- 26. Talc powder

<sup>\*</sup>Specification for gelatin, food grade.

<sup>†</sup>Specification for sorbitol, food grade.

Specification for agar, food grade.

#### APPENDIX B

(Clauses 5.1.1 and 8.1)

#### DETERMINATION OF GUM BASE CONTENT

#### **B-1. PREPARATION OF THE SAMPLE**

**B-1.1** Take four tablets of chewing gum or bubble gum and clean with a fine hair brush to remove the talc and sugar dust. Cut the sample into small pieces.

#### **B-2. METHOD**

**B-2.1** Weigh accurately the entire sample and quantitatively transfer the sample into an extraction catridge. Take 200 ml of chloroform in a tared 250-ml capacity round-bottom flask. Extract the sample for eight hours in a soxhlet extraction assembly. Subsequently distil off the chloroform in a drying chamber at  $105 \pm 1^{\circ}$ C. Weigh the flask. Continue the process till a constant mass is obtained.

#### **B-3. CALCULATION**

**B-3.1** Gum base content, percent by mass = 
$$\frac{(M_1 - M_2) \times 100}{M}$$

where

 $M_1 = \text{mass in g of the flask with extracted gum sample,}$ 

 $M_2 = \text{mass in g of the empty flask, and}$ 

M = mass in g of the sample taken for test.

#### INDIAN STANDARDS

#### ON

#### BAKERY AND CONFECTIONERY INDUSTRY

| IS:               |   |
|-------------------|---|
| 966-1975          | Desiccated coconut (first revision)                     |
| 1008-1981         | Hard boiled sugar confectionery ( second revision )     |
| 1011-1981         | Biscuits ( second revision )                            |
| 1159-1981         | Baking powder (first revision)                          |
| 1320-1981         | Baker's yeast ( second revision )                       |
| 1483-1979         | White bread ( second revision )                         |
| 1667-1981         | Toffees (second revision)                               |
| 1668-1975         | Lozenges ( second revision )                            |
| 1960-1979         | Wheatmeal bread ( second revision )                     |
| 2397-1972         | Wafers ( first revision )                               |
| 2650-1975         | BOMBAY HALWA (first revision)                           |
| 3838-1966         | Self-raising flour                                      |
| 3839-1966         | Food yeast  |
| 6287-1971         | Methods of sampling and analysis of sugar confectionery |
| 6360-1971         | Lacto bonbon  |
| 6747-1981.        | Chewing gum and bubble gum (first revision)             |
| 7187-1974         | Ice cream cones   |
| 7592-1975         | Peanut candy  |
| <b>8555-</b> 1977 | Bread rusk  |
| 8556-1977         | Bun   |
| 8806-1978         | Pan goods (Dragees) confectionery                       |
| 9328-1979         | Glossary of terms relating to confectionery industry    |

9373-1979 Glossary of terms relating to bakery industry

9712-1981 Cakes

# INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

| Base Units   |                  |                 |  |
|--|------------------|-----------------|--|
| QUANTITY   | Unit             | Symbol          |  |
| Length   | metre            | m               |  |
| Mass   | kilogram         | kg              |  |
| Time   | second           |                 |  |
| Electric current   | ampere           | A               |  |
| Thermodynamic  | kelvin           | K               |  |
| temperature  |                  |                 |  |
| Luminous intensity                                       | candela          | cd              |  |
| Amount of substance                                      | mole             | mol             |  |
| Supplementary Units                                      |                  |                 |  |
| QUANTITY   | UNIT             | Symbol          |  |
| Plane angle  | radian           | rad             |  |
| Solid angle  | steradian        | sr              |  |
| Derived Units  |                  |                 |  |
| QUANTITY   | Unit             | SYMBOL          | DEFINITION                               |
| Force  | newton           | N               | 1 N - 1 kg.m/s <sup>3</sup>              |
| Energy   | joule            | J               | $1 J = 1 N_{,m}$                         |
| Power  | watt .           | W               | 1 W = 1 J/s                              |
| Flux   | weber            | Wb              | 1 Wb = 1 V.s                             |
| Flux density   | tesla            | T               | 1 T - 1 Wb/m <sup>2</sup>                |
| Frequency  | hertz            | H2              | $1 \text{ Hz} = 1 \text{ c/s (s}^{-1})$  |
| Electric conductance                                     | siemens          | S               | 1 S = 1 A/V                              |
| Electromotive force                                      | volt             | V               | 1 V = 1 W/A                              |
| Pressure, stress   | pascal           | Pa              | 1 Pa - 1 N/m*                            |
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#### AMENDMENT NO. 1 JULY 1984

TO

# IS:6747-1981 SPECIFICATION FOR CHEWING GUM AND BUBBLE GUM

(First Revision)

#### \*Alterations

[Page 6, Table, St No.(iv)] - Delete and renumber the subsequent item, accordingly.

[Page 6, Table, col 3, against Sl No.(v)] - Substitute '80.0' for '70.0'.

(AFDC 31)

<sup>\*</sup>These values have been referred to the Central Committee for Food Standards, for consideration. Till such time these values are accepted by Government of India, the granting of ISI Certification Mark will be based on the existing requirements given under Prevention of Food Adulteration Rules 1955.



#### AMENDMENT NO. 2 OCTOBER 1985

T0

IS: 6747-1981 SPECIFICATION FOR CHEWING GUM
AND BUBBLE GUM

(First Revision)

(Page 6, clause 5.2.2) - Substitute '1.0 percent' for '0.1 percent'.

(Page 6, clause 5.2.3) - Substitute 'icing sugar' for 'king sugar'.

(Page 8, Appendix A, Sl No. 26) - Delete.

(AFDC 31)

Reprography Unit, ISI, New Delhi, India

#### AMENDMENT NO. 3 JANUARY 1992 TO

# IS 6747: 1981 SPECIFICATION FOR CHEWING GUM AND BUBBLE GUM

(First Revision)

(Page 5, clause 3.1):

Si No. (p) — Delete the words 'or other food grade mineral oil'

SI No. (q) — Substitute "Water, potable (see IS 4251: 1967 Quality tolerances for water for processed food industry)" for "Water, potable";"

SI No. (t) — Insert the following optional ingredients after SI No. (t):

'u) Anticaking agents — permitted under the PFA Rules

v) Dehydrated fruit juice powder.'

(Page 5, clause 4.1.3) — Insert the following after 4.1.3:

'4.1.4 Centre Filled Cliewing Gum — This shall be made directly from the chewing gum base or bubble gum base with centre filling and shall be sugar coated, coloured or uncoloured and flavoured to taste as desired.'

#### AMENDMENT NO. 4 OCTOBER 1996 TO IS 6747: 1981 SPECIFICATION FOR CHEWING GUM AND BUBBLE GUM

(First Revision)

[ Page 5, clause 3.1(t) ] — Substitute 'IS 8356 : 1993\*' for 'IS : 8356 - 1977\*'.

(Page 5, foot-note with '\*' mark) - Insert '(first revision)' at the end.

(Page 6, clause **5.2.2**, line 2) – Substitute 'IS 8356: 1993\*' for 'IS: 8356 - 1977\*'.

(Page 6, foot-note with '\*' mark ) - Insert '(first revision)' at the end.

[ Page 6, Table 1 ( see also Amendment No. 1 ) ] — Substitute the following for the existing table:

Table 1 Requirements for Chewing Gum and Bubble Gum (Clause 5.4 and 8.1)

| SI<br>No. | Characteristic                                | Requirement        |               | Method of Test,<br>Ref to Cl No. of |
|-----------|---|--------------------|---------------|-------------------------------------|
|           |   | Chewing<br>Gum     | Bubble<br>Gum | IS 6287 : 1985*                     |
| (1)       | (2)   | (3)                | (4)           | (5)                                 |
| i)        | Moisture, percent by mass, Max                | 3.5                | 3.5           | 5                                   |
| ii)       | Ash sulphated, percent by mass, Max           | 9.5                | 11.5          | 6                                   |
| iii)      | Acid insoluble ash, percent by mass, Max      | 2.0                | 3.5           | 7                                   |
| iv)       | Reducing sugars, percent by mass, Min         | 4.5                | 5.5           | 8                                   |
| v)        | Sucrose, percent by mass, Max                 | 70.0               | 60.0          | 9                                   |
| •Me       | ethods for sampling and analysis for sugar co | nfectionery ( firs | st revision). |                                     |

<sup>(</sup> Page 7, clauses 7.1 and 8.1, line 2') — Substitute 'IS 6287: 1985\*' for 'IS: 6287 - 1971\*'.

<sup>(</sup>Page 7, clause 8.2.1, line 2) - Substitute 'IS 1070: 1992†' for 'IS: 1070 - 1977†'.

#### Amend No. 4 to IS 6747: 1981

(Page 7, foot-note with '\*' mark) - Insert '(first revision)' at the end.

( Page 7, foot-note with '†' mark ) — Substitute 'Reagent grade water ( third revision)' for the existing.

( Page 8, Appendix A, Sl No. 23 ) — Substitute 'IS  $5707:1970\ddagger$ ' for 'IS:  $5707-1979\ddagger$ '.

(FAD 15)